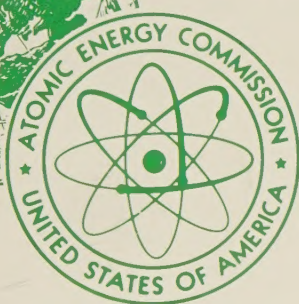


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NUCLEAR SCIENCE ABSTRACTS

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Part 3

Subjects
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NUCLEAR SCIENCE ABSTRACTS

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Nuclear Science Abstracts provides the only comprehensive abstracting and indexing coverage of the international nuclear science literature. It covers scientific and technical reports of the U. S. Energy Research and Development Administration and its contractors, other U. S. Government agencies, other governments, universities, and industrial and research organizations. In addition, books, conference proceedings, individual conference papers, patents, and journal literature on a worldwide basis are abstracted and indexed. Each issue of *Nuclear Science Abstracts* includes four indexes: subject, personal author, corporate author, and report number.

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All documents abstracted are indexed by subjects and personal authors. Report literature is indexed also by corporate author and report number. Each of these indexes in every issue is preceded by an introduction explaining in detail the organization of the index and the principles by which it is compiled. The reader is referred to these explanations for information not found in the brief summaries below.

Personal Authors

Each author's name is indexed in the form appearing on the document abstracted, with the exception that given names are reduced to initials:

HOLLOWAY, J.A., Survey of image processing methods for radiography, 31:16451
 HOLLWEG, J.V., Hydromagnetic waves in interplanetary space, 31:17953
 HOLMBERG, E.B., Distribution of clusters of galaxies as related to galactic absorption, 31:18040
 HOLMES, J.J., See BATES, J.F., 31:17444

Subjects

The subject index consisting of entries naming specific materials, objects, and processes is arranged alphabetically. Document titles, informative phrases, or both specific to these entries are arranged alphabetically under the entries.

Examples:

NUCLEAR POWER PLANTS/REACTOR LICENSING
 Experience acquired in the design and construction of operating plants (German Federal Republic), 31:19104
 NUCLEAR POWER PLANTS/REACTOR SAFETY
 Conception of radiation safety in atomic electric power plants, 31:15032 (CONF-701074-P1)
 NUCLEAR POWER PLANTS/SITE SELECTION
 Safety-related site parameters for nuclear power plants, 31:19052 (WASH-1361)
 Status and development of nuclear power in the Federal Republic of Germany, 31:19105
 NUCLEAR PROPERTIES/RESEARCH PROGRAMS
 Accelerator physics group progress report, July--December 1973 (Research summaries), 31:18544 (INS-R-139)

Corporates

Technical report literature is indexed using the name of the organization or institution responsible for the issuance of the report.

17606 (ANL/HEP-7440, pp I.1-I.12) ACCELERATED POLARIZED PROTONS AT THE ZGS. Ratner, L. G. (Argonne National Lab., IL). Feb 1974.
 From symposium on high energy physics with polarized beams; Argonne, Illinois, USA (8 Feb 1974).
 In symposium on high-energy physics with polarized beams.

is indexed as:

ARGONNE NATIONAL LAB., ILL. (USA)
 Accelerated polarized protons at the ZGS, 31:17606 (ANL/HEP-7440)
 Acceleration of polarized protons in synchrotrons, 31:17692 (ANL/HEP-7440)
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 Argonne polarized target facilities, 31:17762 (ANL/HEP-7440)
 Calculation of transient fission-gas release from oxide fuels, 31:19031 (ANL-8143)

Report Numbers

Technical report literature is also indexed using report numbers. This index includes information on where individual reports may be obtained. While not reports, patents and conference papers are indexed here as a matter of convenience.

WASH-			
1164	31:19026	Dep. NTIS,	\$16.00
1359	31:16524	Dep. NTIS,	\$10.60
1361	31:19052	Dep. NTIS,	\$3.75
WCAP-	(Misc.)		
7906	31:19053	Dep. NTIS,	\$5.50
XDC-			
60-3-68	31:18403	Dep. NTIS,	\$7.25
XN-	(Non-ERDA)		
74-21(Rev.1)	31:19054		
209(Suppl.4)	31:18750	Exxon, Richland, WA	
(Rev.1)			
Y-			
1966	31:19188	Dep. NTIS,	\$4.00

AVAILABILITY OF PUBLICATIONS ABSTRACTED

Public availability of all U. S. Energy Research and Development Administration reports is indicated in the report number indexes. The availability of other reports, when known, is also indicated. The availability of some unnumbered reports is given in the abstract.

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SUBJECT INDEX

The subject indexing of literature announced in *Nuclear Science Abstracts* is based on the use of descriptors* selected from a controlled thesaurus of terms. Subject descriptors and qualifiers (subheadings) are selected and presented in the following format:

SUBJECT DESCRIPTOR/QUALIFIER

Title (supplementary information), volume number:abstract number

For example:

REACTOR CONTROL THEORY
See REACTOR KINETICS
REACTOR COOLING SYSTEMS
See also PRIMARY COOLANT CIRCUITS
REACTOR COOLING SYSTEMS/CRACKS
Small cracks in the reactor cooling system.
Availability of US power plants reduced, 31:18739
REACTOR COOLING SYSTEMS/FLUID FLOW
Fluid flow transient interactions with area discontinuities in piping systems, 31:19077 (SAND-74-8025)
Preliminary analysis of temperature and pressure fluctuations in mixing tees with inlet-leg pipe reducers (LMFBR), 31:18767 (ANL-CT-75-19)

The title may be supplemented with additional words, or a phrase, if it appears additional information would be helpful. This title augmentation is routinely used to denote the presence of numerical data tabulations or new values of constants. In cases for which the title contains little or no information related to the subject entry, it may be replaced entirely by the supplementary information. A qualifier is not always required, and in such cases the title will follow the unqualified subject descriptor.

All index entries cite *NSA* volume and abstract numbers; the volume number precedes the colon and the abstract number follows it. Report numbers, where applicable, are included in parentheses after the abstract number. Published literature (journal article or book) can be identified by the absence of a report number.

The descriptors selected for use as subject terms are generally the names of specific materials, things, and processes. To the extent possible, a qualifier is selected to describe the properties, materials, or processes applied to, the subject term.

Index entries are selected to indicate the important ideas and concepts presented in the original literature, rather than words that may appear in the article. Within the available thesaurus terms, indexers select what seems the most probable or logical place to look for typical information. However, users of the index should consider synonymous or closely related terms.

Information is indexed for the greatest use to the greatest number of users. This requires that a topic be indexed using

*The descriptors used for indexing are selected from the thesaurus of the IAEA International Nuclear Information System (INIS). TIC is a major contributor to thesaurus concepts and maintenance. The thesaurus, IAEA-INIS-13, is available from the SERDA Technical Information Center, P. O. Box 62, Oak Ridge, TN 37830.

subject entries that most specifically describe it and not ordinarily its ultimate use. Only the most specific subject entries are made for a given topic. For example, information on the Yankee-Rowe nuclear power plant is indexed using the subject descriptor ROWE YANKEE REACTOR but not NUCLEAR POWER PLANTS, POWER REACTORS, or PWR TYPE REACTORS. To aid the user, narrower term (NT1) relationships are shown in the subject index as "See also" references. For complete broader term and narrower term relationships of descriptors, refer to IAEA-INIS-13. "See" references are incorporated when abbreviated or synonymous terms have been used.

Specific and general examples can be given as guidance, but for complete understanding, a study should be made of subject entry patterns used to index specific information.

The standard indexing patterns used for some specific subject areas follow.

Machine intervention is used to add collections of related entries to the cumulative indexes because of their unique, e.g., BIBLIOGRAPHIES, MEETINGS, and STANDARDS, or special, e.g., BIOLOGICAL RADIATION EFFECTS, CHEMICAL RADIATION EFFECTS, and PHYSICAL RADIATION EFFECTS, nature.

REACTOR TECHNOLOGY

Subject terms for reactors are of three types: (1) specific reactor names, e.g., BEPO REACTOR, INDIAN POINT-1 REACTOR; (2) reactors having a common physics or engineering characteristic, e.g., FBR TYPE REACTORS, SODIUM COOLED REACTORS; and (3) reactors having a common purpose, as POWER REACTORS, RESEARCH REACTORS.

Information on a specific reactor is indexed using the subject descriptor for that reactor name. Information on classes or types of reactor is indexed using subject descriptors for all applicable reactor types. Most of the common types are indexed using an acronym covering their characteristics, e.g., HTGR TYPE REACTORS, LMFBR TYPE REACTORS. The reactor purpose is used as a subject descriptor only if the article being indexed stresses a unique reactor application for other than power production or research and testing, e.g., DESALINATION REACTORS, PROCESS HEAT REACTORS. Where applicable, subject descriptors that name reactor components may be used, e.g., FUEL ELEMENTS, even though the term is also used as a qualifier of a general reactor term. Indexing is provided for materials used in reactor components when the information is peculiar to the material. For example, if the article deals with corrosion of stainless steel in a sodium cooled reactor, STAINLESS STEELS would be chosen as a pertinent subject descriptor.

In general, qualifiers of reactor subject descriptors are of two types. One type expresses reactor characteristics, e.g., REACTIVITY, and the other indicates components, e.g., CONTROL ELEMENTS.

PARTICLE INTERACTIONS OF HIGH ENERGY PHYSICS

Information on particle-particle events is indexed using subject descriptors that name the particles involved. These subject descriptors have the form PION-NUCLEON INTERACTIONS, MESON-BARYON INTERACTIONS, etc. Such terms are constructed so that the lighter particle appears first in the combination.

A citation on cross sections of pion-neutron interactions would be found by referring to the entry PION-NEUTRON INTERACTIONS/CROSS SECTIONS. This is a dual entry of descriptors corresponding to the main heading-subheading combination of a more conventional index. Each citation under this entry will consist of the title of the article or the title with additional informative words.

Subject terms are also provided for specific models and theories. For example, OCTET MODEL, STRONG-COUPLED MODEL, SYMMETRY GROUPS, etc.

CHEMISTRY

Subject descriptors in chemistry are generally names of elements, isotopes, and compounds. Qualifiers designate properties, processes, and reactions as specifically as possible.

Compounds on which there are significant quantities of information in the literature of nuclear science and technology are indexed by using specific descriptors following the nomenclature of the literature, e.g., METHYL IODIDE, TBP, 2-METHYLPROPANE, URANIUM DIOXIDE, etc.

Compounds occurring less frequently are indexed using more general terms or combinations of terms. In such cases all of the descriptors used to describe the compounds may be selected as subject terms or only the ones of main importance. In these cases the complete compound is indicated in either the title or title augmentation. For example, ethyl bromide is indexed using the subject descriptor BROMINATED ALIPHATIC HYDROCARBONS, uranyl acetates is included as URANYL COMPOUNDS, and lithium fluoroberyllates appears as LITHIUM FLUORIDES and BERYLLIUM FLUORIDES.

Terms for chemical reactions, processes, and properties are not used as subject descriptors in indexing information on specific materials. Such terms are included for publications such as books, reviews, or general treatment of the subject.

LIFE SCIENCES

Information in this area is indexed using subject descriptors for specific animals, plants, microorganisms, biochemicals, biological systems and processes, cells, organs, radiation effects, and substances modifying radiation effects. DNA, BARLEY, HELA

CELLS, BEAGLES, PATIENTS, BACILLUS SUBTILIS, LACTATE DEHYDROGENASE, and CHROMOSOMAL ABERRATIONS are examples of specific subject descriptors. While most descriptors are common names, genus and species names are sometimes used, e.g., DROSOPHILA. If the specific name of an organism or biochemical is not used, the name of a higher category is used instead. For example, clams are indexed using the subject descriptor MOLLUSCS, Anopheles pharoensis using MOSQUITOS, and glutamine oxalacetic acid transaminase using TRANSFERASES. Title augmentation is used to more completely identify the organisms or substances.

Subject descriptors naming incident radiation are used only if dose, RBE, or other radiation quality studies are made.

INSTRUMENTATION

Information in the field of instrumentation technology is indexed using the most specific subject descriptors available for the instrument, instrument component, or instrument application. Qualifiers of subject descriptors are selected to indicate the attribute, characteristic, or component studied, e.g., MASS SPECTROMETERS/PERFORMANCE, LI-DRIFTED GE DETECTORS/SENSITIVITY, GAMMA SPECTROMETERS/LI-DRIFTED GE DETECTORS, THICKNESS GAGES/ACCURACY, INTEGRATED CIRCUITS/PHYSICAL RADIATION EFFECTS, etc. In those cases where the application is indexed, a qualifier is selected to indicate the instrument used in the study, e.g., GAMMA DETECTION/LI-DRIFTED GE DETECTORS and NEUTRON DOSIMETRY/THERMOLUMINESCENT DOSEMETERS.

MATERIALS

Subject descriptors for materials are the names of particular materials, elements, alloys, etc. These descriptors are usually modified by secondary terms such as MECHANICAL PROPERTIES, HEAT TREATMENTS, SUPERCONDUCTIVITY, MICROSTRUCTURE, or PHASE TRANSFORMATIONS.

Multicomponent materials such as alloys are indexed by entering separate descriptors for each component. For example, information on a Cr-Mo-V alloy would be indexed using the three entries CHROMIUM ALLOYS, MOLYBDENUM ALLOYS, and VANADIUM ALLOYS, each being qualified by a secondary descriptor as appropriate. Some alloys such as STAINLESS STEEL-304, INCONEL 600, HASTELLOY X, are named in the index. For these cases indexing for the individual components is not entered, but cross references from the general terms to these named alloys is provided. For example, the reference *Tungsten Alloys*, See also *Hastelloy X* might be found in a given issue, as well as cross references from all the other components of Hastelloy X.

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- ALKALOIDS
- AMINES
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- HETEROCYCLIC COMPOUNDS
- HYDROCARBONS
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- KETONES
- LIPIDS
- NUCLEIC ACIDS
- NUCLEOTIDES
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HALOGENATED ALIPHATIC HYDROCARBONS

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HYPAQUE

IODINATED AROMATIC HYDROCARBONS

IODOURACILS

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ORGANIC NITROGEN COMPOUNDS

See also ACRIDINE ORANGE

ACRIDINES
ACRIFLAVINE
ACRYLAMIDE
ACRYLONITRILE
ADEMINES
ALKALOIDS
AMIDES
AMIDINES
AMINES
AMINO ACIDS
ASPARAGINE
AZIDES
AZINES
AZO COMPOUNDS
AZO COMPOUNDS
BARBITURATES
BENZOXAZOLES
BROMOURACILS
RUDR
CAFFEINE
CARBAZIDES
CARBAZOLES
CHLOROPHYLL
CYTOSINE
DEOXYCYTIDINE
DEOXYURIDINE
DIAZO COMPOUNDS
DIMETHYLGLYOXIME
DINITROPHENOL
FLUOROURACILS
FOLIC ACID
FORMAMIDE
GLUTAMINE
GUANIDINE
GUANINE
GUANOSINE
HEMOGLOBIN
HISTAMINE
HISTIDINE
HYDRAZIDES
HYDRAZONES
HYDROXYPROLINE
HYPAQUE
IMIDAZOLES
IMIDES
IMINES
INDOLES
IODOURACILS
KINETIN
MELATONIN
MERCAPTOPYRINE
METHEMOGLOBIN
METHYLENE BLUE
MEXAMINE
MYOGLOBIN
NICOTINAMIDE
NITRILES
NITRO COMPOUNDS
NITROSO COMPOUNDS
NUCLEIC ACIDS
NUCLEOTIDES
OXADIAZOLES
OXAZOLES
OXIMES
PAN
PEROXIDASES
PHENAZINE
PHENOBARBITAL
PHENOTHIAZINES
PHTHALAZINES
PICRIC ACID
PIPERIDINES
POPOP
PORPHYRINS
PROTEINS

PURINES
PYRAZINES
PYRAZOLES
PYRAZOLINES
PYRIDAZINES
PYRIDINES
PYRIDINIUM COMPOUNDS
PYRIDOXAL
PYRIDOXINE
PYRIDYLAZORESORCINOL
PYRIMIDINES
PYRROLES
PYRROLIDONES
PYRROLIDONES
QUINOLINES
RESERPINE
SEMICARBAZONES
SEROTONIN
SULFONAMIDES
THEOPHYLLINE
THIADIAZOLES
THIAZOLES
THORIN
THYMIDINE
THYMINE
TRYPTAMINES
TRYPTOPHAN
URACILS
UREA
URFTHANE
URIC ACID
URIDINE
VINBLASTINE
XANTHINES

ORGANIC NITROGEN COMPOUNDS/BIOLOGICAL EFFECTS

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Search for new radioprotective agents. Pt. 25. Synthesis of some sulphides of 2-quinoxaline derivatives, 31:22057

ORGANIC NITROGEN COMPOUNDS/CHEMICAL REACTIONS

Positronium reactions with diamagnetic organic molecules (Rate constants), 31:26964

ORGANIC NITROGEN COMPOUNDS/ELECTRIC CONDUCTIVITY

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ORGANIC NITROGEN COMPOUNDS/IONIZATION POTENTIAL

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Increase of the efficacy of radiotherapy of tumors with DNA synthesis inhibitor oxyurea (X Radiation; mice), 31:11631

ORGANIC OXYGEN COMPOUNDS

See also ALDEHYDES
ANTHRAQUINONES
BARBITURATES
BENZOXAZOLES
CAFFEINE
CARBOHYDRATES
CARBONIC ACID DERIVATIVES
CYTOSINE
DIOXANE
EPOXIDES
ESTERS
ETHERS
ETHYL ETHER
FURANS
HYDROXY COMPOUNDS
KETENES
KETONES
LIPIDS
MEXAMINE
ORGANIC ACIDS
OXADIAZOLES

OXAZOLES
PHENOBARBITAL
POPOP
PYRANS
PYRIDOXAL
QUINONES
STEROIDS
THEOPHYLLINE
UBIQUINONE
URIC ACID
VITAMIN K
XANTHINES

NIC OXYGEN COMPOUNDS/BIOCHEMICAL REACTION KINETICS

ological effects of radiation and related biochemical and physical studies. Proposal 5. Chemical and biological studies on nucleic acids and derivatives. Progress report, May 1, 1971--30 April 1973 (Gamma radiation; uv radiation), 31:14268 (CDD-3521-133)

NIC OXYGEN COMPOUNDS/BIOLOGICAL EFFECTS

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NIC OXYGEN COMPOUNDS/BIOLOGICAL RADIATION EFFECTS

ological effects of radiation and related biochemical and physical studies. Proposal 1. Radiation studies. Progress report, May 1, 1970--May 1, 1971, 31:14265 (CDD-3521-122)

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ological effects of radiation and related biochemical and physical studies. Proposal 5. Chemical and biological studies on nucleic acids and derivatives. Progress report, May 1, 1971--30 April 1973 (Gamma radiation; uv radiation), 31:14268 (CDD-3521-133)

NIC OXYGEN COMPOUNDS/CHEMICAL PREPARATION

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NIC OXYGEN COMPOUNDS/PHOTOCHEMISTRY

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NIC OXYGEN COMPOUNDS/PHOTOLYSIS

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NIC OXYGEN COMPOUNDS/RADIOLYSIS

udies in radiation chemistry (Gamma radiation and uv radiation), 31:25304

NIC OXYGEN COMPOUNDS/RADIOSENSITIVITY EFFECTS

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NIC OXYGEN COMPOUNDS/STOPPING POWER

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NIC PHOSPHORUS COMPOUNDS

See also BUTYL PHOSPHATES.

DAMPA
DBP
HDEHP
NUCLEIC ACIDS
NUCLEOTIDES
PHOSPHONIC ACID ESTERS
PHOSPHORIC ACID ESTERS
TBP

NIC PHOSPHORUS COMPOUNDS/BIOLOGICAL EFFECTS

utonium removal in rats given some complexons by mouth (EDTA; DCTA; ethylenediamine-bis-bimethylphosphonic acid), 31:16896 (AEC-tr-7590)

NIC PHOSPHORUS COMPOUNDS/LABELLING

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NIC PHOSPHORUS COMPOUNDS/NUCLEAR MAGNETIC RESONANCE

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NIC PHOSPHORUS COMPOUNDS/RADIOLYSIS

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NIC PHOSPHORUS COMPOUNDS/RADIOSENSITIVITY EFFECTS

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ORGANIC POLYMERS

See also BAKELITE

GRAFT POLYMERS
PLASTICS
POLYACETALS
POLYAMIDES
POLYESTERS
POLYETHYLENE GLYCOLS
POLYISOPRENE
POLYOLEFINS
POLYVINYL
RESINS
RUBBERS

ORGANIC POLYMERS/CHEMICAL RADIATION EFFECTS

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Radiation-induced crosslinking and cyclization in 1,2-polybutadiene (Gamma radiation), 31:19299

The behaviour of high polymers under the influence of ionizing radiation, 31:16040 (AED-CONF-74-406-002)

ORGANIC POLYMERS/PHYSICAL RADIATION EFFECTS

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(0 - 5 per cent.)

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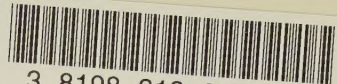
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